

LLL IIIIIIIIII 888888888888 RRRRRRRRRRRRRR TTTTTTTTTTTTTTTTT LLL
LLL IIIIIIIIII 888888888888 RRRRRRRRRRRRRR TTTTTTTTTTTTTTTTT LLL
LLL IIIIIIIIII 888888888888 RRRRRRRRRRRRRR TTTTTTTTTTTTTTTTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRRRRRRRRRRRRR TTT LLL
LLL IIIIIIII 888888888888 RRRRRRRRRRRRRR TTT LLL
LLL IIIIIIII 888888888888 RRRRRRRRRRRRRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRR RRR TTT LLL

FILEID**OTSMOVE

M 15

000000 TTTTTTTTTT SSSSSSSS MM MM 000000 VV VV EEEEEEEEEE
000000 TTTTTTTTTT SSSSSSSS MM MM 000000 VV VV EEEEEEEEEE
00 00 TT SS MMM MMM 00 00 VV VV EE
00 00 TT SS MMM MMM 00 00 VV VV EE
00 00 TT SS MM MM 00 00 VV VV EE
00 00 TT SS MM MM 00 00 VV VV EE
00 00 TT SSSSSS MM MM 00 00 VV VV EEEEEEEEEE
00 00 TT SSSSSS MM MM 00 00 VV VV EEEEEEEEEE
00 00 TT SS MM MM 00 00 VV VV EE
00 00 TT SS MM MM 00 00 VV VV EE
00 00 TT SSSSSS MM MM 00 00 VV VV EEEEEEEEEE
00 00 TT SSSSSS MM MM 00 00 VV VV EEEEEEEEEE
000000 TT SSSSSSSS MM MM 000000 VV VV EEEEEEEEEE
000000 TT SSSSSSSS MM MM 000000 VV VV EEEEEEEEEE

....
....
....
....

LL IIIII SSSSSSSS
LL IIIII SSSSSSSS
LL II SS
LLLLLLLLLL IIIII SSSSSSSS
LLLLLLLLLL IIIII SSSSSSSS

(2)	50	DECLARATIONS
(3)	78	OTSSMOVE\$ - Move characters without fill
(4)	128	OTSSMOVE\$_R5 - Move characters without fill
(5)	225	OTSSMOVE\$ - Move characters with fill
(6)	286	OTSSMOVE\$_R5 - Move characters with fill

0000 1 .TITLE OTSSMOVE - Move characters
0000 2 .IDENT /1-005/ ; File: OTSMOVE.MAR Edit: SBL1005
0000 3
0000 4 :
0000 5 *****
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0000 24 *
0000 25 *
0000 26 *****
0000 27 :
0000 28 :
0000 29 :++
0000 30 : FACILITY: Language-independent Compiled Code Support
0000 31 :
0000 32 : ABSTRACT:
0000 33 :
0000 34 : This module contains a procedure which moves up to 2**31-1
0000 35 : characters.
0000 36 :
0000 37 : ENVIRONMENT: Runs at any access mode, AST Reentrant
0000 38 :
0000 39 : AUTHOR: Steven B. Lionel, CREATION DATE: 14-SEP-1981
0000 40 :
0000 41 : MODIFIED BY:
0000 42 :
0000 43 : 1-001 - Original. SBL 14-SEP-1981
0000 44 : 1-002 - Code improvement. SBL 8-Dec-1981
0000 45 : 1-003 - Add OTSSMOVES and OTSSMOVES_RS entry points
0000 46 : 1-004 - Fix problem with just filling of >65K bytes. SBL 27-July-1982
0000 47 : 1-005 - Fix register-saving bug with backwards copy. SBL 17-May-1983
0000 48 :--

0000 50 .SBTTL DECLARATIONS
0000 51
0000 52 : LIBRARY MACRO CALLS:
0000 53
0000 54 : NONE
0000 55
0000 56 : EXTERNAL DECLARATIONS:
0000 57
0000 58 : NONE
0000 59
0000 60 : MACROS:
0000 61
0000 62 : NONE
0000 63
0000 64 : EQUATED SYMBOLS:
0000 65
0000 66 : NONE
0000 67
0000 68 : OWN STORAGE:
0000 69
0000 70 : NONE
0000 71
0000 72 : PSECT DECLARATIONS:
0000 73 :
00000000 74 : .PSECT _OTSSCODE PIC, USR, CON, REL, LCL, SHR, -
0000 75 : EXE, RD, NOWRT, LONG
0000 76

0000 78 .SBTTL OTSSMOVE3 - Move characters without fill
 0000 79 :++
 0000 80 : FUNCTIONAL DESCRIPTION:
 0000 81 :
 0000 82 : This procedure moves up to 2**31-1 characters from a specified
 0000 83 : source address to a specified destination address. Overlapping
 0000 84 : fields are handled correctly.
 0000 85 :
 0000 86 : CALLING SEQUENCE:
 0000 87 :
 0000 88 : CALL OTSSMOVE3 (length.rl.v, source.rbu.ra, dest.wbu.ra)
 0000 89 :
 0000 90 : FORMAL PARAMETERS:
 0000 91 :
 0000 92 :
 00000004 0000 93 : length = 4 : Number of bytes to move, passed by
 0000 94 : immediate value. Value may range from
 0000 95 : 0 through 2147483647.
 00000008 0000 96 : source = 8 : Characters to move, passed by reference.
 0000000C 0000 97 : dest = 12 : Area to receive moved characters, passed
 0000 98 : by reference.
 0000 99 :
 0000 100 :
 0000 101 :
 0000 102 : IMPLICIT INPUTS:
 0000 103 :
 0000 104 : NONE
 0000 105 :
 0000 106 : IMPLICIT OUTPUTS:
 0000 107 :
 0000 108 : NONE
 0000 109 :
 0000 110 :
 0000 111 : FUNCTION VALUE:
 0000 112 :
 0000 113 : NONE
 0000 114 :
 0000 115 : SIDE EFFECTS:
 0000 116 :
 0000 117 : NONE
 0000 118 :
 0000 119 :--
 0000 120 :
 003C 0000 121 .ENTRY OTSSMOVE3, ^M<R2,R3,R4,R5>
 0002 122 :
 50 04 AC 7D 0002 123 MOVQ Length(AP), R0 : Get length and source address
 52 0C AC DC 0006 124 MOVL dest(AP), R2 : Get destination address
 01 10 000A 125 BSBB OTSSMOVE3_R5 : Do the move
 04 000C 126 RET : Return to caller

000D 128 .SBTTL OTSSMOVE3_R5 - Move characters without fill
 000D 129 ++
 000D 130 : FUNCTIONAL DESCRIPTION:
 000D 131 :
 000D 132 : This procedure moves up to $2^{31}-1$ characters from a specified
 000D 133 : source address to a specified destination address. Overlapping
 000D 134 : fields are handled correctly.
 000D 135 :
 000D 136 : CALLING SEQUENCE:
 000D 137 :
 000D 138 JSB OTSSMOVE3_R5 (length.rl.v, source.rbu.ra, dest.wbu.ra)
 000D 139 :
 000D 140 : FORMAL PARAMETERS:
 000D 141 :
 000D 142 :
 000D 143 length = R0 ; Number of bytes to move. Value may range
 ; from 0 through 2147483647.
 000D 144 :
 000D 145 : source = R1 ; Address of characters to move.
 000D 146 :
 000D 147 : dest = R2 ; Address of area to receive moved characters.
 000D 148 :
 000D 149 :
 000D 150 :
 000D 151 : IMPLICIT INPUTS:
 000D 152 :
 000D 153 : NONE
 000D 154 :
 000D 155 : IMPLICIT OUTPUTS:
 000D 156 :
 000D 157 R0 = 0
 000D 158 R1 = Address of one byte beyond the source string.
 000D 159 R2 = 0
 000D 160 R3 = Address of one byte beyond the destination string.
 000D 161 R4 = 0
 000D 162 R5 = 0
 000D 163 :
 000D 164 : FUNCTION VALUE:
 000D 165 :
 000D 166 : NONE
 000D 167 :
 000D 168 : SIDE EFFECTS:
 000D 169 :
 000D 170 : NONE
 000D 171 :
 000D 172 :--
 000D 173 :
 000D 174 : OTSSMOVE3_R5::
 000D 175 :
 0000FFFF 8F 50 D1 000D 176 CMPL R0, #65535 : Is length greater than 65535?
 05 14 0014 177 BGTR BIGSTRING : If so, can't do simple move.
 62 61 50 28 0016 173 MOVC3 R0, (R1), (R2) : Simple case; do the move
 05 001A 179 RSB
 001B 180 :
 001B 181 BIGSTRING:
 52 51 D1 001B 182 CMPL R1, R2 : Check for overlap that would prevent
 4B 1E 001E 183 BGEQU FORWARDS : a forward copy.
 53 52 51 C3 0020 184 SUBL3 R1, R2, R3 : Get distance between start points

	50	53	D1	0024	185	CMPL	R3, R0			
	42	1E		0027	186	BGEQU	FORWARDS			
				0029	187					
				0029	188					
				0029	189					
				0029	190					
				0029	191					
				0029	192					
				0029	193					
				0029	194	BACKWARDS:				
	53	S2	50	C1	0029	195	ADDL3	R0, R2, R3		
	51	50	C0	0020	196	ADDL2	R0, R1			
	08	BB	BB	0030	197	PUSHR	#^M<R0,R1,R3>			
				0032	198	10\$:				
	FFFF0001	E1	FFFF	8F	28	0032	199	MOVC3	#65535, -65535(R1), -	
	FFFF0001	E3				003B	200		-65535(R3)	
						0040	201			
	51	0000FFFF	8F	C2	0040	202	SUBL2	#65535, R1		
	53	0000FFFF	8F	C2	0047	203	SUBL2	#65535, R3		
6E	FFFF0001	8F	00010000	8F	F1	004E	204	ACBL	#65536, #65535, (SP), 10\$; Loop until <65536 bytes left	
				FFD6	005A					
	50	8E	DO	005C	205	MOVL	(SP)+, R0			
	52	50	CE	005F	206	MNEGL	R0, R2			
6342	6142	50	28	0062	207	MOVC3	R0, (R1)[R2], (R3)[R2]			
		0A	BA	0068	208	POPR	#^M<R1,R3>			
			05	006A	209	RSB				
				006B	210					
				006B	211					
				006B	212	:	Come here if it's ok to do the copy from left to right.			
				006B	213	:	-			
				006B	214					
				006B	215	FORWARDS:				
	63	61	53	50	DD	006B	216	PUSHL	R0	
			52	DO	006D	217	MOVL	R2, R3		
			28	0070	218	10\$:	MOVC3	#65535, (R1), (R3)		
				0076	219					
				0076	220					
6E	FFFF0001	8F	00010000	8F	F1	0076	221	ACBL	#65536, #65535, (SP), 10\$; Repeat until <65536 bytes left	
				FFEC	0082					
	63	61	50	8E	DO	0084	222	MOVL	(SP)+, R0	
			28	0087	223	MOVC3	R0, (R1), (R3)			
			05	008B	224	RSB				

; and compare it to string size.
; If distance larger than string size,
; ok.

; Come here if we have to do the copy from right to left because of
; overlap.

; R3 points past end of dest
; R1 points past end of source
; Save length remaining, drc and dest end

; Move a segment
; R1 and R3 get set by the MOVC3
; to point past the source and dest.

; Get new source address
; Get new dest address

; Set R1 and R3 to proper end values

; Get length remaining in R0
; Get -length in R2
; Do the final move

; Save length remaining
; Move dest address to R3
; Move a segment. R1 and R3 get
; updated with new source and dest
; addresses.

; Get final length
; Do the final move
; Return

008C 226 .SBTTL OTSSMOVES - Move characters with fill
 008C 227 :++
 008C 228 : FUNCTIONAL DESCRIPTION:
 008C 229 :
 008C 230 : This procedure moves up to 2**31-1 characters from a specified
 008C 231 : source address to a specified destination address, with separate
 008C 232 : source and destination lengths, and with fill. Overlapping
 008C 233 : fields are handled correctly.
 008C 234 :
 008C 235 : CALL OTSSMOVES (srclen.rl.v, source.rbu.ra, fill.rbu.v,
 008C 236 : dstlen.rl.v, dest.wbu.ra)
 008C 237 :
 008C 238 :
 008C 239 : FORMAL PARAMETERS:
 008C 240 :
 008C 241 :
 008C 242 :
 00000004 008C 243 srclen = 4 : Number of bytes in the source, passed by
 008C 244 : immediate value. Value may range from
 008C 245 : 0 through 2147483647.
 00000008 008C 246 source = 8 : Characters to move, passed by reference.
 0000000C 008C 248 fill = 12 : Fill byte to use when the srclen is less than
 008C 249 : dstlen. Passed by immediate value.
 00000010 008C 251 dstlen = 16 : Number of bytes in the destination, passed by
 008C 252 : immediate value. Value may range from
 008C 253 : 0 through 2147483647.
 00000014 008C 255 dest = 20 : Area to receive moved characters, passed
 008C 256 : by reference.
 008C 257 :
 008C 258 :
 008C 259 : IMPLICIT INPUTS:
 008C 260 :
 008C 261 : NONE
 008C 262 :
 008C 263 : IMPLICIT OUTPUTS:
 008C 264 :
 008C 265 : NONE
 008C 266 :
 008C 267 : FUNCTION VALUE:
 008C 268 :
 008C 269 : NONE
 008C 270 :
 008C 271 : SIDE EFFECTS:
 008C 272 :
 008C 273 : NONE
 008C 274 :
 008C 275 :
 008C 276 :--
 008C 277 :
 003C 008C 278 .ENTRY OTSSMOVES, ^M<R2,R3,R4,R5>
 008E 279 :
 50 04 AC 7D 008E 280 MOVQ srclen(AP), R0 : Get source length and address
 52 0C AC 7D 0092 281 MOVQ fill(AP), R2 : Get fill and destination length
 54 14 AC D0 0096 282 MOVL dest(AP), R4 : Get destination address

OTSSMOVE
1-005

- Move characters
OTSSMOVES - Move characters with fill

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(5)

01 10 009A 283
04 009C 284

BSBB RET OTSSMOVES_RS

; Do the move
; Return to caller

009D 286 .SBTTL OTSSMOVES_RS - Move characters with fill
009D 287 :++
009D 288 : FUNCTIONAL DESCRIPTION:
009D 289 :
009D 290 : This procedure moves up to 2**31-1 characters from a specified
009D 291 : source address to a specified destination address, with separate
009D 292 : source and destination lengths, and with fill. Overlapping
009D 293 : fields are handled correctly.
009D 294 :
009D 295 : CALLING SEQUENCE:
009D 296 :
009D 297 : JSB OTSSMOVES_RS (srclen.rl.v, source.rbu.ra, fill.rbu.v,
009D 298 : dstlen.rl.v, dest.wbu.ra)
009D 299 :
009D 300 : FORMAL PARAMETERS:
009D 301 :
009D 302 :
009D 303 : srclen = R0 : Number of bytes in the source
009D 304 : : Value may range from
009D 305 : : 0 through 2147483647.
009D 306 :
009D 307 : source = R1 : Address of characters to move
009D 308 :
009D 309 : fill = R2 : Fill byte to use when the srclen is less than
009D 310 : : dstlen.
009D 311 :
009D 312 : dstlen = R3 : Number of bytes in the destination.
009D 313 : : Value may range from
009D 314 : : 0 through 2147483647.
009D 315 :
009D 316 : dest = R4 : Address of area to receive moved characters.
009D 317 :
009D 318 :
009D 319 : IMPLICIT INPUTS:
009D 320 :
009D 321 : NONE
009D 322 :
009D 323 : IMPLICIT OUTPUTS:
009D 324 :
009D 325 : R0 = Number of unmoved bytes remaining in source string.
009D 326 : R1 = Address of one byte beyond the source string.
009D 327 : R2 = 0
009D 328 : R3 = Address of one byte beyond the destination string.
009D 329 : R4 = 0
009D 330 : R5 = 0
009D 331 :
009D 332 : FUNCTION VALUE:
009D 333 :
009D 334 : NONE
009D 335 :
009D 336 : SIDE EFFECTS:
009D 337 :
009D 338 : NONE
009D 339 :
009D 340 :--
009D 341 :
009D 342 OTSSMOVES_RS::

OSSMOVE Symbol table

- Move characters

K 16

16-SEP-1984 00:32:51 VAX/VMS Macro V04-00
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BACKWARDS	00000029	R	01
BIG5	000000B6	R	01
BIGSTRING	0000001B	R	01
DEST	= 00000014		
EXACT	= 000000C1	R	01
FILL	= 0000000C		
FORWARDS	0000006B	R	01
LENGTH	= 00000004		
NEED FILL	000000C6	R	01
OTSSMOVE3	00000000	RG	01
OTSSMOVE3_R5	0000000D	RG	01
OTSSMOVE5	0000008C	RG	01
OTSSMOVE5_R5	0000009D	RG	01
SRCLEN	= 00000004		

+-----+
! Psect synopsis !
+-----+

PSECT name	Allocation	PSECT No.	Attributes
. ABS OTSSCODE	0UUU0000 (0.) 00000110 (272.)	00 (0.) 01 (1.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BY.E PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC BY.E

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.05	00:00:00.89
Command processing	114	00:00:00.33	00:00:02.22
Pass 1	76	00:00:00.51	00:00:03.07
Symbol table sort	0	00:00:00.01	00:00:00.01
Pass 2	76	00:00:00.47	00:00:01.34
Symbol table output	2	00:00:00.01	00:00:00.01
Psect synopsis output	3	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	302	00:00:01.40	00:00:07.56

The working set limit was 750 pages.

5152 bytes (11 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 16 non-local and 5 local symbols.
385 source lines were read in Pass 1, producing 14 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.

----- ! Macro library statistics ! -----

Macro library name

Macros defined

~~\$255\$DUA28:[SYSLIB]STARLET.MLB:2~~

0

0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

OTSSMOVE
VAX-11 Macro Run Statistics

- Move characters

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MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$:OTSMOVE/OBJ=OBJ\$:OTSMOVE MSRC\$:OTSMOVE/UPDATE=(ENH\$:OTSMOVE)

0212 AH-BT13A-SE
VAX/VMS V4.0

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